

Werribee Satellite Aerodrome Hangars

Including the largest clear span timber trussed building in Victoria

The Pacific War, 1942

The United States of America entered the Second World War following the bombing of Pearl Harbour (Hawaii) by the Japanese in 1941. Australia then became a base for Allied forces in the Pacific War.

This led to a need to build new facilities for both Australian and particularly US forces in Australia. These hangars, and others like them elsewhere in Australia, were part of that effort.

Satellite Aerodromes

Werribee was a satellite aerodrome to Point Cook and Laverton air bases. It was only intended to train air crews and had no formed runways, just grassed landing strips.

There were five hangars, a workshop, and accommodation and administration buildings.

Today, only two hangars and the workshop remain. Hangar 1 and the workshop are no longer safe to enter. Hangar 2 now has additional roof supports and houses the restoration of the B-24 MR Liberator.



ENGINEERS
AUSTRALIA



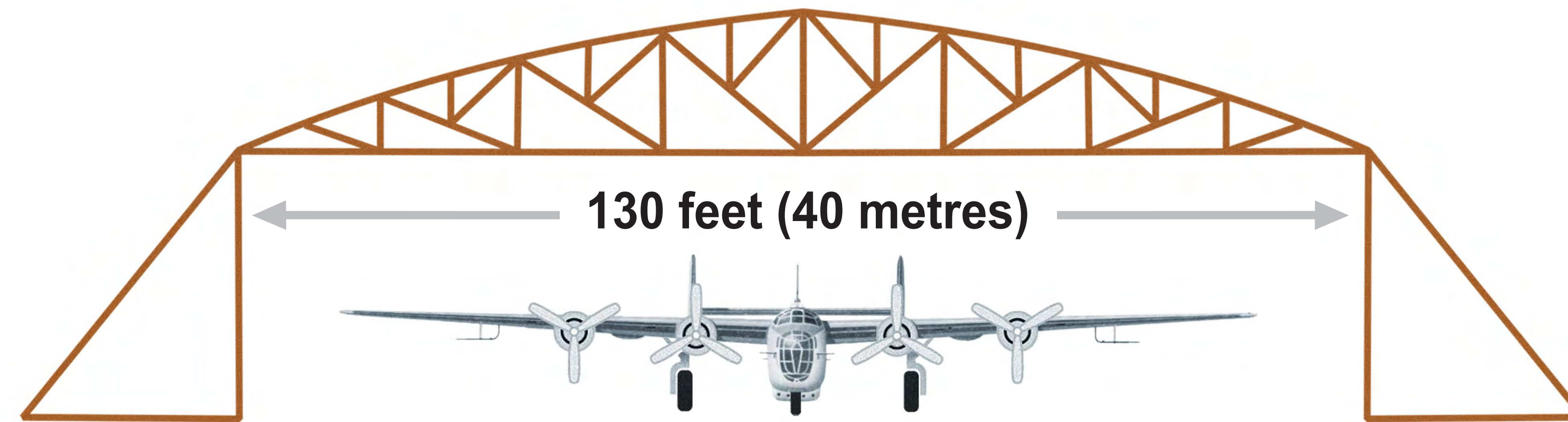
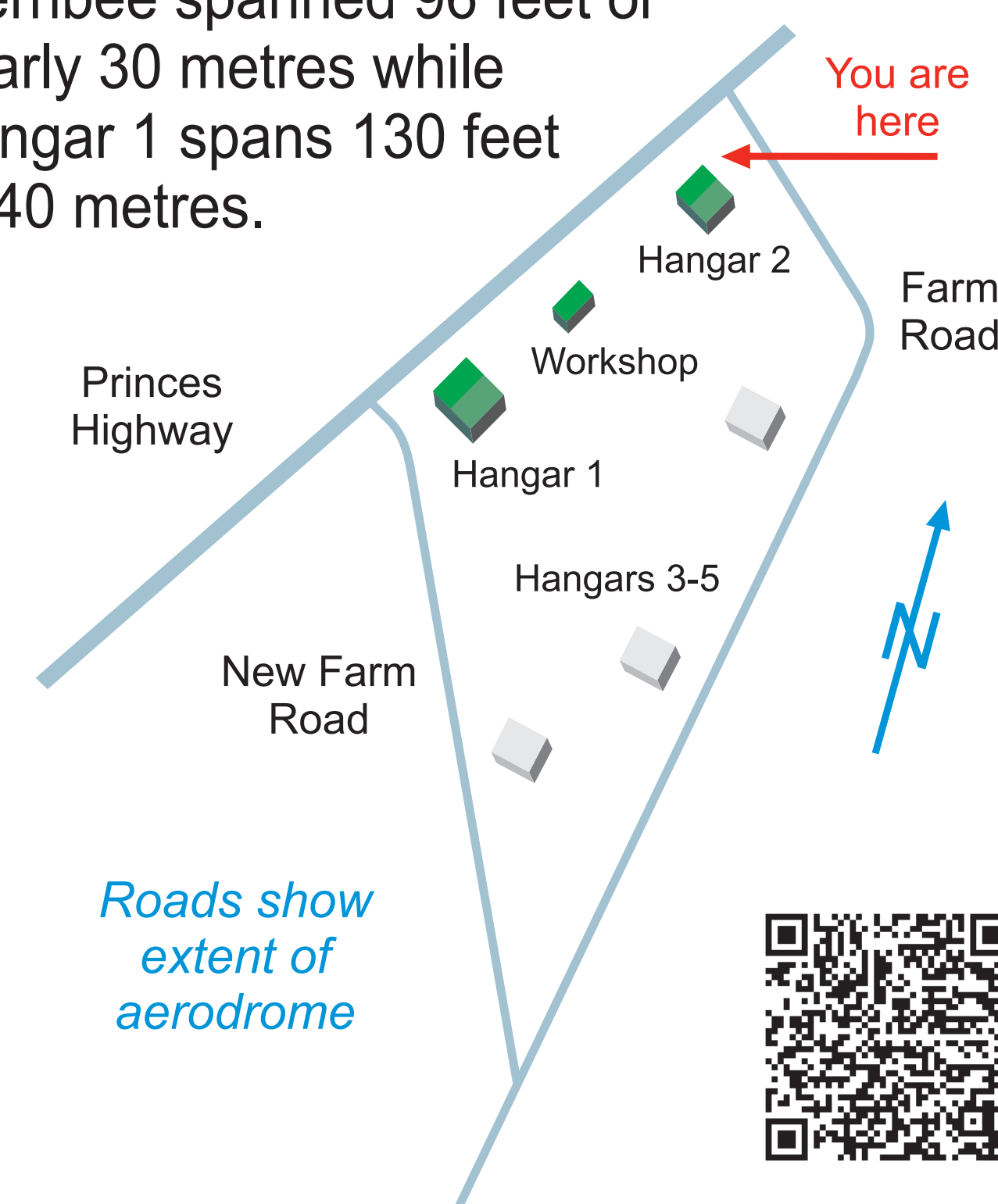
Engineering Heritage Marker 13 July 2014
Engineers Australia – B-24 Liberator Memorial Restoration Australia Inc

For more details about this and other engineering heritage works, go to www.engineersaustralia.org.au/heritageregister/search

Design Adaptation

To accommodate aircraft – such as the B-24 – with large wingspans, hangars had to provide a very wide unobstructed space. A roof design known as a Pratt truss is able to span large distances. It consists of a series of triangular units connected at joints.

American engineers had designed aircraft hangars with steel trusses. However, during the War, the design had to be adapted to use Australian hardwood with TECO connectors, originally developed for American softwoods. Four hangars (including Hangar 2) at Werribee spanned 96 feet or nearly 30 metres while Hangar 1 spans 130 feet or 40 metres.



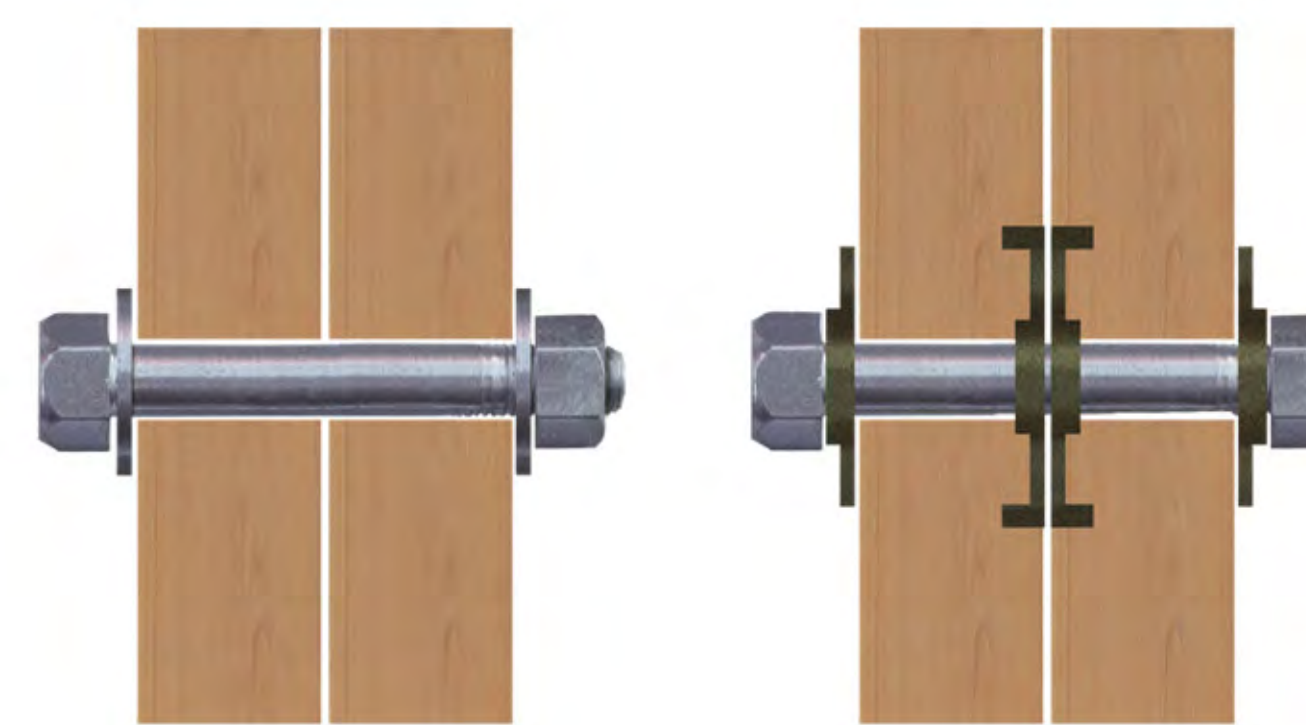
TECO Split Ring and Shear Plate Connectors



TECO Split Ring Connector



TECO Shear Truss Connector



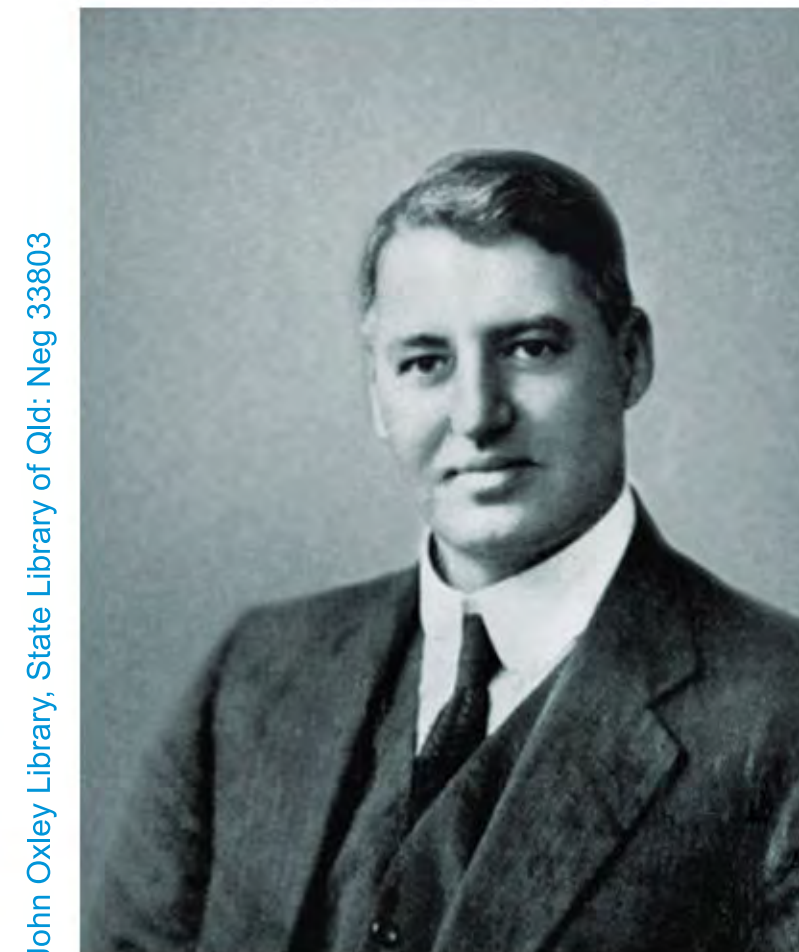
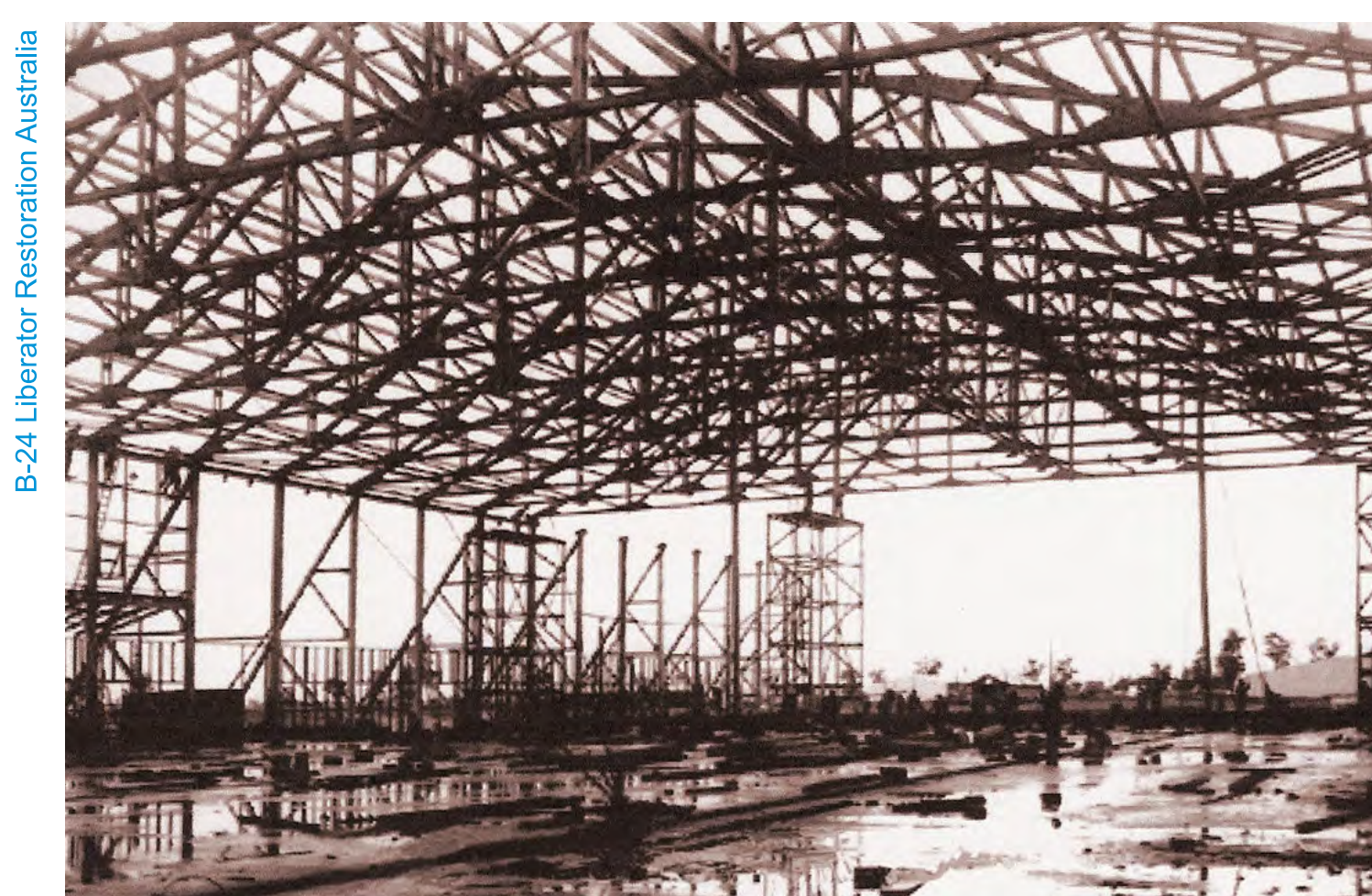
Conventional nut and bolt compared with TECO Shear Truss Connector



TECO, The Timber Engineering Company, was incorporated in Chicago in 1933. Owned by the American lumber industry, its purpose was to research and develop designs for wood structures using patented timber connectors. Today's timber trusses fastened with gang nail plates are a legacy of TECO's engineering.

Truss joints are critical points. They must be strong enough to carry the load of the truss itself and the roof it supports. The TECO connectors spread the load, strengthen the joints, and reduce the number of bolts needed. These American fittings plus local hardwood were the key to building the large clear span hangars needed by the Allies.

Hangar 2 under construction in 1942



Edward Theodore



George Kenny

Edward Theodore (1884-1950)

Hard-driving Director-General of the Allied Works Council, Theodore recommended the formation of the Civilian Construction Corps (CCC) to increase the construction capacity for military facilities without over-loading the military construction units. The CCC eventually employed over 77000 workers. He helped Australia and the US win the War by providing essential facilities behind the scenes.

General George Kenny (1899-1977)

Kenny commanded the US Fifth Air Force, based in Brisbane. This force, flying alongside the RAAF, operated in the South West Pacific area. Their particular targets were enemy shipping and the increasingly isolated enemy bases throughout the Islands. The mighty Liberator was one of the "tools of trade" of these air forces.